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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/709,162	11/10/2000	Guillermo J. Tearney	187718/US - 475387-00245	3219
30873	7590	07/28/2010	EXAMINER	
DORSEY & WHITNEY LLP INTELLECTUAL PROPERTY DEPARTMENT 250 PARK AVENUE NEW YORK, NY 10177			KISH, JAMES M	
			ART UNIT	PAPER NUMBER
			3737	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

09/709,162

**Applicant(s)**

TEARNEY ET AL.

**Examiner**

JAMES KISH

**Art Unit**

3737

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 68-148 and 150-162 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 68-141, 147, 148 and 150-162 is/are rejected.
- 7) ☒ Claim(s) 142-146 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/C.3)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed May 7, 2010 have been fully considered but they are not persuasive.

On page 30 of the Remarks, the Applicant argues that the amendment stating "image-forming lens arrangement" is not found in the references. Furthermore, the Applicant argues that the transparent shield/enclosure of Kittrell cannot be interpreted as an image-forming lens arrangement. The Examiner respectfully disagrees. At column 4, lines 55-56, Kittrell states that "the shield may be lens shaped." At column 4, lines 58-63 Kittrell states, "Lenses or mirrors, and mechanical or optical aiming and focusing devices can be mounted inside of the shield." At column 14, lines 59-65 Kittrell states, "The optical elements may... be incorporated into the shield such as by making it lens shaped..." At column 15, lines 3-4 Kittrell states, "By making the surfaces curved instead of flat the optical shield may also be made to act as a lens." Therefore, the shield may incorporate and/or act as a lens. Furthermore, the lens 41 in Figures 21 and 22 are located at the proximal end of the optical fiber which directs light to/from the tissue being imaged. Therefore, the light exiting this fiber is directed through this lens and therefore, it is used in the image-forming aspect of the device.

On page 31, the Applicant argues that the prior art fails to teach "a fluid displacement arrangement acts on the dispersive arrangement." The Examiner is unable to find support for the fluid displacement arrangement to specifically act on the

dispersive arrangement within the specification. Nor is it clear from any of the drawings that such an action would be produced.

On page 32, the Applicant argues that "the dispersive arrangement is structured to provide at least 100 spectrally-resolvable points without a controlled mechanical motion." However, on page 13 of the specification an equation is provided for determining the number of resolvable points. It is unclear how the dispersive arrangement alone would be structured to provide at least 100 resolvable points in view of the number of different variables needed to determine this value.

On page 33, the Applicant argues that the amendment for claim 147, which removed the option of "or near," now reads over the prior art. However, the Examiner is unable to find a passage in the specification that teaches that the optical fiber is provided at a position of an image plane of the at least one portion. Furthermore, it is unclear where "a position of an image plane" is located. Furthermore, the drawings do not illustrate this location of the optical fiber.

The following rejection differs from the previously made rejection based on the amendments and as related to the above remarks.

***Claim Rejections - 35 USC § 112***

Claims 83, 103 and 147 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in

the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 83 and 103 state that a fluid displacement arrangement acts on the dispersive arrangement. The examiner is unable to find where this is taught in the specification and the figures fail to illustrate such an action by the fluid displacement arrangement.

Claim 147 has been amended by removing the option of “or near” leaving only that the optical fiber is at a position of an image plane. The Examiner is unable to locate where this is described in the specification and the figures to not illustrate such a teaching. Furthermore, it is unclear what is meant by “the position of an image plane.”

### ***Claim Objections***

Claims 142-146 are objected to because of the following informalities:

Claims 142-146 are objected to because these claims state that the dispersive arrangement is structured to provide at least 100 spectrally-resolvable points. However, on page 13 of the specification the equations specify that bandwidth and center frequency are important in determining the number of resolvable points. In fact, equation (2) seems to determine the number of resolvable points without a variable relating to the dispersive arrangement. In light of both of these, it is unclear how the dispersive arrangement is structured to provide any number of resolvable points.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 68-75, 81-82, 84-87, 89-95, 101-102, 104-107, 109-116, 118-128, 130, 137-140, 147-149, 152-157 and 161-162 are rejected under 35 U.S.C. 102(b) as being anticipated by Kittrell et al. (US Patent No. 5,318,024) – herein referred to as Kittrell. Kittrell discloses a laser endoscope for generating a spectrally resolved spatial (therefore, at *least* two-dimensional) image of tissue. Kittrell illustrates at least one lens arrangement in Figures 21 and 22 with numeral **40** and **41**, which guides light into optical fibers. Furthermore, Kittrell teaches that the shield **12** maybe use to control spot size by means of lenses inserted within the shield (column 5, lines 33-34). Also, Figure 23 illustrates a reflective mirror lens grating combination **68** at the return end of the device. In several embodiments of Kittrell, a lens, multiple lenses, holographic elements, gratings, prisms or a mirror can be used to control the location and divergence of laser light and return fluorescence or scattered light (column 13, lines 64-68). These elements (a lens, multiple lenses, holographic elements, gratings, prisms or a mirror) can be controlled by wires. Light from conventional sources may be used broadband, or it may be filtered or dispersed (column 20, lines 59-62). The laser catheter can be used to penetrate most types of tissues (column 6, lines 5-21), thereby modifying a property of the structure. As illustrated in Figure 25, the distal ends of the

optical fibers are at different angles and column 8, lines 57-60 states that the distal ends of the optical fibers are optically polished. As seen in Figure 17C, the light emitted from the end of the probe is made to overlap.

Regarding claim 147, Kittrell teaches "Spot size can also be varied by means of lenses inserted within the shield..." which places a lens proximate the dispersive prism, which is proximate the end of an optical fiber (see Figure 13B).

Regarding claim 148 of the current application, claim 1 of Kittrell states, "processing the separated light received by the detector with a computer such that the spectrally resolved light provides a displayable spatial image of the illuminated tissue."

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 83, 88, 103, 108, 117, 129, 131-136, 141 and 158-160 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kittrell in view of Olinger et al. (US Patent No. 3,941,121) – herein referred to as Olinger. Kittrell is discussed above in the rejection of claims 68, 89, 113, 125. However, Kittrell fails to provide a fluid displacement arrangement. Olinger teaches a needle endoscope including a hollow needle of about 18-gauge (*see* Abstract). To clear the area for better viewing in certain situations, a syringe can be connected to a luer lock, associated with the coupling, and warm normal saline solution can be injected through the electrode channel (column 10, lines 32-40). It would have been obvious to combine the teachings of Olinger with the device of Kittrell in order to provide operative visual supervision of a treatment procedure performed through an operative channel of the needle and which is small enough to be universally acceptable for introduction into previously inviolate tissue area without resorting to open surgery techniques (column 2, lines 56-62).

Claims 76-78 and 96-98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kittrell in view of Webb et al. (WO 99/44089) – herein referred to as Webb. Kittrell is discussed above in the rejection of claims 75 and 95. However, Kittrell fails to teach a specific number of resolvable points that make up the image. Webb teaches that the number of resolvable points is related to the total bandwidth of the



source and the bandwidth of the spectrum. The number of resolvable points may be any number governed by Equation (2) on page 3. An example is provided on page 4. Absent the showing of criticality, it would have been obvious to one of ordinary skill in the art at the time the invention was made to create an image with any number of resolvable points based on the equation of Webb as a matter of design choice.

Claims 79-80 and 99-100 rejected under 35 U.S.C. 103(a) as being unpatentable over Kittrell in view of Baker et al. (US Patent No. 5,275,594) – herein referred to as Baker. Kittrell discloses a catheter used for diagnosis and removal of arterial or vascular obstructions (column 1, lines 14-16). See the previous description of Kittrell in the rejection of claims 68 and 89. However, Kittrell does not explicitly disclose a diameter for the probe. Baker teaches that the diameter of arteries is on the order of one to a few millimeters (column 1, lines 40-41). Therefore, it would be obvious to one of skill in the art at the time the invention was made to design the probe of Kittrell to have a diameter of less than about one millimeter in order to allow the device to enter any location in the arteries and vasculature of the patient, based on the teaching of Baker.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES KISH whose telephone number is (571)272-5554. The examiner can normally be reached on 8:30 - 5:00 ~ Mon. - Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN CASLER/  
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JMK